

What is claimed is:

1. An ultrasonic probe comprising;  
a piezoelectric transducer for sending and  
receiving an ultrasonic wave,  
5 and a conductive substrate for applying current to  
the piezoelectric transducer,  
wherein the conductive substrate is arranged  
oppositely to a side face of the piezoelectric  
transducer,

10 and a conductive material is arranged in a corner  
portion formed by the piezoelectric transducer and the  
conductive substrate, the material electrically  
connecting the piezoelectric transducer to the  
conductive substrate.

15 2. The ultrasonic probe according to claim 1,  
wherein the conductive substrate has a signal  
wiring and an earth wiring.

3. The ultrasonic probe according to claim 2,  
wherein a nonconductive material insulates a  
20 jointed portion of the piezoelectric transducer with  
the signal wiring from a jointed portion of the  
piezoelectric transducer with the earth wiring.

4. The ultrasonic probe according to claim 1,  
wherein the conductive substrate has the signal  
25 wiring and the earth wiring,  
either one of the wirings is electrically  
connected to a first electrode formed on a surface side

of the piezoelectric transducer by the conductive material arranged in a first corner portion formed by a surface of the piezoelectric transducer and the conductive substrate,

5           and the other wiring is electrically connected to a second electrode formed on a back side of the piezoelectric transducer by the conductive material arranged in a second corner portion formed by the back of the piezoelectric transducer and the conductive  
10          substrate.

5. The ultrasonic probe according to claim 1,  
        wherein the conductive material supplied to the corner portion is coated by a nonconductive material.

15          6. The ultrasonic probe according to claim 1,  
        wherein a face of the conductive substrate at a side of the piezoelectric transducer is disposed on a plane equal to a side face of the piezoelectric transducer or a plane spaced from the piezoelectric  
20          transducer.

7. The ultrasonic probe according to claim 1,  
        wherein the conductive substrate is formed flat in the vicinity of the piezoelectric transducer.

8. The ultrasonic probe according to claim 1,  
25          wherein the conductive material is formed in a fillet pattern.

9. An ultrasonic probe comprising;

a piezoelectric transducer for sending and receiving an ultrasonic wave,

a first conductive substrate having a signal wiring for applying current to the piezoelectric transducer,

and a second conductive substrate having an earth wiring for connecting to the piezoelectric transducer,

wherein the first conductive substrate is arranged oppositely to a first side face of the piezoelectric transducer,

the second conductive substrate is arranged oppositely to a second side face of the piezoelectric transducer,

the earth wiring is electrically connected to a first electrode formed on a first main-face side of the piezoelectric transducer by a conductive material arranged in a first corner portion formed by the first conductive substrate,

and the signal wiring is electrically connected to a second electrode formed on a second main-face side of the piezoelectric transducer by a conductive material arranged in a second corner portion formed by the second conductive substrate.

10. The ultrasonic probe according to claim 9, wherein a nonconductive material insulates a jointed portion of the piezoelectric transducer with the signal wiring from a jointed portion of

the piezoelectric transducer with the earth wiring.

11. The ultrasonic probe according to claim 9,  
wherein the conductive material is coated by a  
nonconductive material.

5           12. The ultrasonic probe according to claim 9,  
wherein a face of the conductive substrate at a  
side of the piezoelectric transducer is disposed on a  
plane equal to a side face of the piezoelectric  
transducer or a plane spaced from the piezoelectric  
10 transducer.

13. The ultrasonic probe according to claim 9,  
wherein the conductive material is formed in a  
fillet pattern.

14. In a fabrication method of an ultrasonic probe  
15 for fabricating the ultrasonic probe having a  
piezoelectric transducer for sending and receiving an  
ultrasonic wave, and a conductive substrate for  
applying current to the piezoelectric transducer, the  
method comprising;

20           a disposing process for disposing the conductive  
substrate oppositely to a side face of the  
piezoelectric transducer,

          a supplying process of a conductive material for  
supplying the conductive material to a corner portion  
25 formed by the piezoelectric transducer and the  
conductive substrate,

and a heating process for electrically connecting

the piezoelectric transducer to the conductive substrate by heating the conductive material.

15. The method for fabricating the ultrasonic probe according to claim 14,

5            wherein a soldering material is used as the conductive material, and a contact type heating unit is used in heating the soldering material.

16. The method for fabricating the ultrasonic probe according to claim 14,

10           wherein the soldering material is used as the conductive material, and a non-contact-type heating unit is used in heating the soldering material.

17. The method for fabricating the ultrasonic probe according to claim 14,

15           wherein a thermosetting material is used as the conductive material.

18. The method for fabricating the ultrasonic probe according to claim 14,

20           wherein a soldering cream is used as the conductive material.

19. The method for fabricating the ultrasonic probe according to claim 14,

             wherein a photo-reactive hardening material is used as the conductive material.

25           20. The method for fabricating the ultrasonic probe according to claim 14,

             wherein after the piezoelectric transducer is

electrically connected to the conductive substrate,  
the piezoelectric transducer is repolarized.